ASSIGNMENT 1

Textbook Assignment: "Blueprint Reading and Technical Drawings." Pages 4-1 through 4-13. "Planning Plumbing Projects." Pages 7-1 through 7-18.

1-1. What factor is generally used to categorize a drawing?

1. Importance
2. Purpose
3. Methodology
4. Format

1-2. During what phase of a building project is the preliminary drawing prepared?

1. Design
2. Scheduling
3. Fabrication
4. Construction

1-3. What category of drawing is used to make material selections?

1. Construction
2. Secondary
3. Preliminary
4. Engineering

1-4. Shop and working drawings are developed at which of the following times?

1. Before developing secondary drawings
2. After receiving the engineering drawings
3. Before developing the preliminary drawings
4. After receiving approval for construction

1-5. Construction plans are developed from what type of drawing?

1. Architectural
2. Secondary
3. Preliminary
4. Engineering

1-6. Which of the following individuals designs the power and lighting system requirements for a project?

1. Engineer
2. Architect
3. Designer
4. Customer

1-7. As a supervisor, you should refer to what documents as the chief source(s) of information during a construction project?

1. Construction drawings
2. Project specifications
3. Bill of materials
4. Each of the above

1-8. Construction prints are used to express ideas easier and faster. They are also used by the supervisor for which of the following reasons?

1. To evaluate personnel
2. To monitor construction progress
3. To determine the necessary construction methods
4. To determine the electrical load of the building

1-9. The waterline stub outs, located on the right side of figure 4-1C, are supplying what fixture?

1. Tub
2. Water closet
3. Cleanout
4. Lavatory

1-10. What type of line is used to show the center of a line or fitting?

1. Stitch
2. Cutting
3. Center
4. Visible

IN ANSWERING QUESTIONS 1-11 THROUGH 1-15, SELECT FROM COLUMN B THE TYPE OF LINE THAT MATCHES THE DEFINITION IN COLUMN A. RESPONSES MAY BE USED MORE THAN ONCE.

A. DEFINITIONS	B. TYPES OF LINES
1-11. Indicates concealed edges	1. Extension
1-12. Indicates distance measured	2. Dimension
1-13. Indicates extent of a dimension	3. Hidden
1-14. Indicates a part, dimension, or reference	4. Leader
1-15. Indicates medium lines with short, evenly spaced dashes	

1-16. In the preparation of electrical drawings, engineers use symbols adopted by what authority?

1. National Association of Architects and Engineers
2. American Engineering Society
3. American National Standards Institute
4. National Institute of Construction Engineers

1-17. Blueprints have a symbol list or legend for which of the following reasons?

1. Because engineers modify existing symbols to fit their needs
2. Because standard electrical symbols cannot be used on military projects
3. Because it is required by labor unions
4. Because few symbols are recognized nationwide

1-18. What type of plan shows the spot where a building is to be placed on a piece of land?

1. Architectural
2. Plot
3. Foundation
4. Engineering

1-19. To determine the point where service taps should be connected, you should use which of the following plans?

1. Elevation
2. Floor
3. Foundation
4. Plot

1-20. Exterior elevation drawings help when you are installing which of the following components?

1. Lavatories
2. Rough-in piping
3. Hose bibs
4. Drains

1-21. You are installing a lavatory in a bathroom counter. Which of the following drawings indicates the water supply stub outs?

1. Framing
2. Site
3. Floor
4. Interior elevation

1-22. When the actual length of a pipe run is 80 feet, what is the length of its line on a blueprint with a scale of 1 /8 inch = 2 feet?

1. 5 inches
2. 7 inches
3. 3 inches
4. 10 inches

1-23. The distance between two fixtures drawn on a blueprint is 3 inches long. What is the actual distance between the fixtures if the print is drawn with a scale of 1/2 inch = 3 feet?

1. 6 feet
2. 9 feet
3. 18 feet
4. 24 feet

1-24. What is the bill of material for a project?

1. A listing of material by cost
2. A listing of project specifications
3. A statement of required material
4. A listing of defective requisition line items

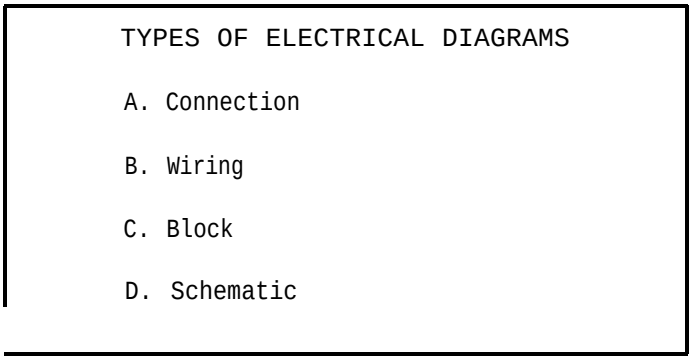

Figure 1A

IN ANSWERING QUESTIONS 1-25 THROUGH 1-29, REFER TO FIGURE 1A.

1-25. Shows relationship of major components:

1. A
2. B
3. C
4. D

1-26. Shows the electrical operation:

1. A
2. B
3. C
4. D

1-27. Shows all internal and external connections:

1. D
2. C
3. B
4. A

1-28. Portrays a picturelike drawing:

1. D
2. C
3. B
4. A

1-29. Called an elementary or a single-line diagram:

1. A
2. B
3. C
4. D

1-30. To assist in the installation of a plumbing system, the Utilitiesman should draw what type of document?

1. A schematic
2. A working sketch
3. A block diagram
4. A single-line diagram

1-31. When drawing a working sketch, you should perform what step first?

1. Locate the main cable runs on the drawing
2. Draw the terminal connections
3. Locate the power supply on the drawing
4. Draw the symbols used for components

1-32. Specifications set what level of standards for a construction project?

1. Minimum
2. Maximum
3. American Engineering Society
4. National Institute of Construction Engineers

1-33. Project specifications provide which of the following information?

1. Size of materials
2. Quality of materials
3. Generic descriptions of materials
4. Relationship between different materials

1-34. Designer intentions about a project can be clarified in the specifications in which of the following ways?

1. By adding a detail or note to the drawings
2. By adding detailed, descriptive statements to the specifications
3. By ensuring the material is duplicated in the drawings
4. By using only general statements on construction methods and materials

1-35. Ensuring that the operations department receives a marked set of prints showing any construction deviations is the responsibility of what person?

1. The project engineer
2. The project supervisor
3. The project Engineering Aid
4. The quality control inspector

1-36. Record drawings are prepared from which of the following documents?

1. Original blueprints
2. Working sketches
3. As-built drawings
4. Project specifications

1-37. When maintenance on a structure requires a change to the record drawing, you should pass this information to which of the following departments?

1. Quality control
2. Operations only
3. Maintenance control only
4. Operations or maintenance control

1-38. What document is used to present notes and information in tabular form?

1. A schedule
2. A project specification
3. A material summary sheet
4. An overall project list

1-39. On a plumbing fixture schedule, a Utilitiesman can locate information concerning installation in what column?

1. Type
2. Remarks
3. Mounting
4. Installation

1-40. To provide expert advice to crew members, you should be thoroughly familiar with which of the following data?

1. Plumbing codes
2. Job plans and specifications
3. Technical references and manufacturers' manuals
4. Each of the above

1-41. What person is responsible for communicating requirements to other companies and departments?

1. The coordinator
2. The supervisor
3. The planner
4. The technical advisor

1-42. Which of the following factors determines the type of pipe that should be used in a sanitary system?

1. Building requirements
2. Waste matter conveyed
3. Pipe location
4. Each of the above

1-43. What is the minimum allowable horizontal distance between the underground water service and the building drain, in feet?

1. 8
2. 2
3. 6
4. 4

1-44. After installation, a building sewer should be pressure-treated with what minimum head of water?

1. 5 feet
2. 2 feet
3. 10 feet
4. 15 feet

1-45. So you can obtain the necessary fluid velocity in a sanitary drainage system, what is the minimum amount of slope, in inches per foot, for piping 3 inches or less in diameter?

1. 1/16
2. 1/8
3. 1/4
4. 1/2

1-46. Sewer mains installed with the proper grade provide a discharge velocity of not less than how many feet per second?

1. 8
2. 2
3. 6
4. 4

1-47. To create an efficient natural scouring action and still allow capacity for peak loads, what should be the flow depth in the optimum size of pipe under normal use?

1. One-fourth full
2. One-half full
3. Two-thirds full
4. Three-fourths full

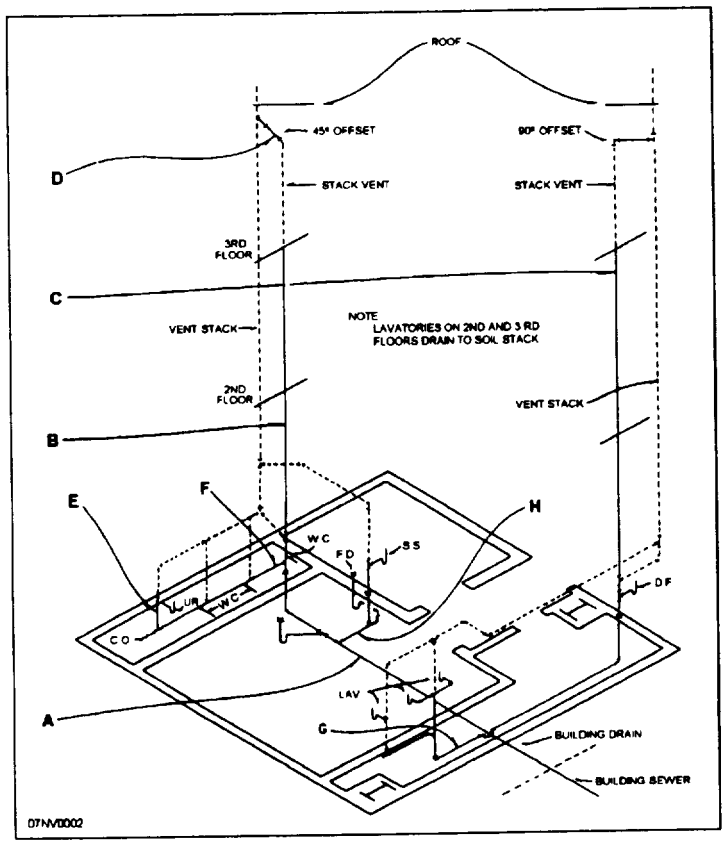

Figure 1 B

THE ANSWERS TO QUESTIONS 1-48 THROUGH 1-59 ARE DERIVED FROM FIGURE 1 B USING THE PROCEDURES DISCUSSED IN THE TEXT. FIGURE 1 B ILLUSTRATES A CAST-IRON DRAINAGE SYSTEM FOR A BUILDING WITH THREE IDENTICAL HEADS, ONE ON EACH OF THREE FLOORS LOCATED DIRECTLY ABOVE EACH OTHER. THE FOLLOWING TYPES OF FIXTURES ARE TO BE USED:

Valve-operated water closet
Siphon jet blowout pedestal urinal
Standard 1 1/4-inch-diameter waste lavatory
Standard 2-inch-diameter waste floor drain
Drinking fountain
Combination sink and tray with a 1 1/2-inch-diameter trap

1-48. What is the total number of drainage fixture units in the installation?

1. 101 1/2
2. 106 1/2
3. 107 1/2
4. 109 1/2

1-49. A pipe of what diameter, in inches, is required for the building drain at point A when installed at a 1 percent-grade?

1. 5
2. 2
3. 3
4. 4

1-50. A total of how many drainage fixture units could be added to the drainage system without requiring an increase in the size of the building drain?

1. 180
2. 93 1/2
3. 73 1/2
4. 60

1-51. A waste stack is indicated at what point?

1. B
2. C
3. D
4. E

1-52. A soil stack is indicated at what point?

1. B
2. C
3. D
4. F

1-53. What diameter of pipe, in inches, is required at point B?

1. 6
2. 2
3. 3
4. 4

1-54. What diameter of pipe, in inches, is required at point D?

1. 6
2. 2
3. 5
4. 4

1-55. A pipe of what diameter, in inches, is required at point C?

1. 1 1/4
2. 2
3. 1 1/2
4. 2 1/4

1-56. A pipe of what diameter, in inches, is required at point E?

1. 1 1/2
2. 2
3. 3
4. 3 1/2

1-57. What diameter of pipe, in inches, is required at point F?

1. 5
2. 2
3. 3
4. 4

1-58. A pipe of what diameter, in inches, is required at point G?

1. 1 1/4
2. 2
3. 1 1/2
4. 2 1/4

1-59. What diameter of pipe, in inches, is required at point H?

1. 1 1/2
2. 2
3. 31/2
4. 4

1-60. Which of the following fixtures requires the largest waste pipe?

1. Shower
2. Trap-to-floor slop sink
3. Lavatory with a copper tubing waste pipe
4. Scullery sink with a steel waste pipe

1-61. For planning purposes, the size of a sanitary collecting sewer in a residential area is based on which of the following information?

1. Full occupancy of all quarters served
2. Number of persons employed in an 8-hour period
3. Average number of contributing persons during a 24-hour period
4. Allowance for full capacity plus 25 percent

1-62. In the sizing of a typical sanitary collecting sewer, what figure is added to the extreme rate of flow to obtain the design flow?

1. The average rate of flow
2. The differential between average and peak flow
3. An amount equivalent to the low-flow ratio differential
4. An allowance for infiltration

1-63. Which of the following factors should be considered when you are determining the size of a sewer pipe?

1. Grade
2. Design flow
3. Pipe characteristic
4. Each of the above

1-64. Slope is an important part of sewer pipe installation and is, in part, dependent upon the inside diameter of the pipe. What is the minimum slope, in feet per 100 foot, for pipe with an 8-inch inside diameter?

1. 0.60
2. 0.40
3. 0.24
4. 0.14

1-65. Flow velocity is an important consideration in designing a sanitary collecting sewer for which of the following reasons?

1. Excessive velocity erodes the sewer pipes
2. Excessive velocity draws subsurface water into the sewer
3. Low velocity causes pipe erosion
4. Low velocity results in soil contamination around the pipes

1-66. Manholes for sanitary collecting sewers are normally placed at intervals of 300 to 500 feet. What condition can reduce the interval between two manholes to less than 300 feet?

1. A change in grade or direction
2. A junction of two or more sewer lines
3. A change in pipe size
4. Each of the above

1-67. When building storm drains, you should allow for what minimum slope?

1. 1 inch per foot
2. 1/8 inch per foot
3. 1/4 inch per foot
4. 1/2 inch per foot

1-68. You should use which of the following factors to determine the size of pipe in a cold-water supply system?

1. Maximum fixture demand
2. Type of flushing devices
3. Pressure of the water supply
4. Each of the above

1-69. The term “simultaneous use” as applied to a cold-water supply system and its fixtures has what meaning?

1. Probable percentage of fixtures in use at any given time
2. Probable percentage of fixtures in use at the same time within a 24-hour period
3. Approximate amount of water required to supply fixtures used simultaneously over a given period of time
4. Ratio of persons to fixtures

1-70. What is the minimum practical size of a water-service line?

1. 1 inch
2. 3/8 inch
3. 1/2 inch
4. 3/4 inch

1-71. Copper pipe is advantageous as a hot-water supply line for which of the following reasons?

1. It retains heat
2. It is an excellent insulator
3. It resists corrosion
4. It is an excellent conductor of heat

1-72. You should use a circulating hot-water supply system for which of the following reasons?

1. To conserve energy
2. To maintain a constant hot-water supply
3. To assist in heating a building
4. Each of the above

1-73. The corporation stop should be installed in what position?

1. On the water main where a tap is made
2. On the overhead-feed and gravity-return system
3. On the highest point of the distribution piping
4. On the water main in a convenient location

1-74. A stop and waste valve is used for what purpose?

1. To secure water to the boiler
2. To drain the building water system
3. To secure water at the main
4. To drain the hot-water heater